REMARKS

The above amendments to the above-captioned application along with the following remarks are being submitted as a full and complete response to the Official Action dated September 19, 2007. In view of the above amendments and the following remarks, the Examiner is respectfully requested to give due reconsideration to this application, to indicate the allowability of the claims, and to pass this case to issue.

Status of the Claims

Claims 4-5, 7-10 and 13 are under consideration in this application. Claims 6 & 11-12 are being cancelled without prejudice or disclaimer. Claims 4-5 and 13 are being amended, as set forth above and in the attached marked-up presentation of the claim amendments, in order to more particularly define and distinctly claim Applicants' invention.

All the amendments to the claims are supported by the specification, especially the drawings. Applicants hereby submit that no new matter is being introduced into the application through the submission of this response.

Prior Art Rejection

Claims 4-13 were rejected under 35 U.S.C. §103 (a) as being unpatentable over US 7,020,162 to Iwasaki et al. (hereinafter "Iwasaki") in view of US 2002/0162029 of Allen et al. (hereinafter "Allen") or newly cited Ooghe et al. (US 2005/0276218). These rejections have been carefully considered, but are most respectfully traversed in view of the claims currently on file, as more fully discussed below.

The packet communicating system of the present invention (for example, the embodiment depicted in Figs. 8 & 22), as now recited in claim 4, comprises: an optical line termination (OLT) 10 for subsidiarily connecting optical network units (ONUs) 12 by the Passive Optical Network type (PON), said OLT 10 having a function for terminating the physical layer of the PON (10/11/12 in Fig. 6) and controlling bandwidths in physical lines between the OLT 10 and the ONUs 12; and a broadband access server (BAS) 28 connected to said OLT 10, said BAS 28 having a function for authorizing users 13 (Fig. 6) communicating with the Internet 30 (Fig. 6), via the ONUs 12 and the OLT 10. The BAS 28 has a function for controlling said OLT 10 through a first physical line (the un-numbered line on top of line 15 in Fig. 8) connecting

therefrom and directly to the OLT 10, using information of the users 13 obtained from **only one** Remote Authentication Dial In User Service (RADIUS) server 26 which is connected **only** with the BAS 28 (Fig. 8) and manages information of the users when authorizing the users 13 to communicate with the Internet 30. The BAS 28 has a function for sending and receiving bandwidth control packets through said first physical line to the OLT 10 for controlling user bandwidths at the OLT 10 (*"the BAS and the OLT operate in cooperation in such a way that the BAS, during user authorization, passes user bandwidth information obtained from a RADIUS server to the OLT to perform bandwidth control on a user basis under the ONU"* p. 9 line 23 to p. 10, line 2; p. 16, lines 1-7), and setting bandwidths per user for the users to send and receive user packets through a second physical line 15 directly connecting between the BAS 28 and the OLT 10 (via lines 17/16/15/29).

Claim 5 recites the packet communicating system of claim 1 but phrased differently. Claim 13 recites a packet communicating system comprising: a plurality of optical network units 12, a star coupler 11 connected with the plural optical network units 12; and the packet communicating system/apparatus of claim 5 connected with the star coupler 11. The packet communicating apparatus of claim 5 multiplexes sending data to the plural optical network units and sends the multiplexed sending data to the star coupler. The star coupler 11 broadcasts the multiplexed sending data to the optical network units 12, and each of the optical network units 12 receives data directed thereto.

The prior art network depicted in FIG. 6 include a broadband access server BAS 28 that performs aggregation of user accesses, user management, and service allocation, an OLT 10 that receives user data from the BAS and sends it to a PON system, and manages the PON system; SC 11 that branches a single optical fiber to plural optical fibers; and ONUs 12 that terminate user access and send user data to the PON system (OLT) according to the OLT. In BPON and EPON systems, bandwidth control between OLT and ONUs is performed in an ONU unit. As more and more users are introduced, a PON system suffers from the problem of the number of branches of SC, since one ONU is normally installed for each user. The number of branches of the SC is limited by physical constraints attributed to laser output installed in both the OLT and ONU. Multiple branches are achieved only by use of very expensive and high-output lasers. One method for avoiding a big number of branches is to accommodate plural users in an ONU and share the ONU among the users. However, since the OLT and the BAS operate

independently, the OLT has not performed bandwidth control for each of users under the ONUs (p. 4, line 16 to p. 5, line 21). The present invention enables bandwidth control per user for users under the ONUs.

Applicants respectfully contend that none of the cited references or their combinations teach or suggest (1) "***a first physical line*** (the un-numbered line on top of line 15 in Fig. 8) connecting therefrom and ***directly*** from the BAS 28 to the OLT 10, to control bandwidth per user using information of the users 13 obtained from **only one** RADIUS server 26 which is connected ***only*** with the BAS 28 and manages information of the users when authorizing the users 13 to communicate with the Internet 30", and that (2) "the BAS 28 has a function for sending and receiving bandwidth control packets through ***said first physical line*** to the OLT 10 for controlling user bandwidths ***at the OLT 10***, and setting bandwidths per user for the users to send and receive packets through ***a second physical line*** 15 directly connecting between the BAS 28 and the OLT 10" as the present invention.

As admitted by the Examiner (p. 3, lines 8-17 of the outstanding Office action), Iwasaki does not provide any BAS or RADIUS server. As such, it fails to provide such devices so connected as recited in the independent claims.

Allen (Fig. 2) provides several RADIUS servers 214, 218 connected not only to the BAS 206, but also to the enterprise 210 and the ISP 212 respectively. As such, Allen does not provide "**only one** RADIUS server 26 which is connected ***only*** with the BAS 28" as the present invention.

Although AAPA of Fig. 6 arguably provides a RADIUS server 26 similar to the one of the invention, it has only the second physical line 15, but not the first physical line of the present invention. While Ooghe (Fig. 1) has one direct line and one indirect line (via NM) between ENOD and ANOD, rather than two direct lines as the invention. As such, they do not provide "a BAS 28 having a function for sending and receiving bandwidth control packets through ***said first physical line*** to the OLT 10 for controlling user bandwidths ***at the OLT 10***, and setting bandwidths per user for the users to send and receive packets through ***a second physical line*** 15 directly connecting between the BAS 28 and the OLT 10" as the present invention.

Applicants contend that the cited references and their combinations all fail to teach or suggest each and every feature of the present invention as recited in independent claims 4-5 and 13. As such, the present invention as now claimed is distinguishable and thereby allowable over

the rejections raised in the Office Action. The withdrawal of the outstanding prior art rejections is in order, and is respectfully solicited.

Conclusion

In view of all the above, clear and distinct differences as discussed exist between the present invention as now claimed and the prior art reference upon which the rejections in the Office Action rely, Applicants respectfully contend that the prior art references cannot anticipate the present invention or render the present invention obvious. Rather, the present invention as a whole is distinguishable, and thereby allowable over the prior art.

Favorable reconsideration of this application is respectfully solicited. Should there be any outstanding issues requiring discussion that would further the prosecution and allowance of the above-captioned application, the Examiner is invited to contact the Applicants' undersigned representative at the address and phone number indicated below.

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